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[54] **CONDUCTING SCANNING PROBE MICROSCOPE WITH ENVIRONMENTAL CONTROL**

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[58] **Field of Search** 250/201.3, 239, 250/559.22, 306, 307, 222.2, 228, 234; 356/376, 244, 440

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[57] **ABSTRACT**

A scanning probe microscope for measuring the characteristics of a surface of a sample is provided and includes a probe for scanning the surface of a sample to be measured and a sample stage which is adapted to position a sample in the microscope. In a preferred embodiment, the microscope is a conducting atomic force microscope. The microscope also includes a source of voltage in communication with the probe and the sample and a detector for measuring the electrical current to or from the probe and the sample. The probe and the sample are positioned within an enclosure which isolates the probe and the sample from the ambient environment, and the enclosure includes a gas inlet and a gas outlet for controlling the environment in the enclosure to maintain the atmosphere in the enclosure at approximately atmospheric pressure.

17 Claims, 7 Drawing Sheets